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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/245,168 | 02/05/1999 | VINCENT K. JONES | CISCP604 | 4595 |

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EXAMINER

HOM, SHICK C

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2666

DATE MAILED: 08/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/245,168

Applicant(s)

JONES ET AL.

Examiner

Shick C Hom

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,9-16,19 and 22-25 is/are rejected.
- 7) ☒ Claim(s) 4-8 and 10-21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-25 have been considered but are moot in view of the new ground(s) of rejection.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

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1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321[©] may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1, 3, 12-13, 16, and 19 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-16 of U.S. Patent No. 6,549,592. Although the conflicting claims are not identical, they are not patentably distinct from each other because the application's claims 1 and 12-13 merely broaden the scope of the U.S. Patent No. 6,549,592 claim 1 by eliminating the transforming stage that transforms a second series of M frequency domain data symbols into a second burst of M time domain symbols; and a cyclic prefix appending stage that appends to a beginning of said second time domain burst a second cyclic prefix

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duplicating a last segment of said second time domain burst to form a second synchronization burst. Likewise, the application's claims 3, 16, and 19 merely broaden the scope of U.S. Patent No. 6,549,592 claim 10 by eliminating the receiver system that receives the second of said sub-bursts including M time domain symbols preceded by a second cyclic prefix. It has been held that the omission of a element and its function is an obvious expedient if the remaining elements perform the same function as before. In re Karlson, 136 USPQ (CCPA). Also note Ex parte Rainu, 168 USPQ 375 (Bd. App. 1969); omission of a reference element whose function is not needed would be obvious to one skilled in the art.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2),

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and (4) of section 371[©] of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 2 and 14-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Malmgren (6,314,082).

Regarding claims 2 and 14:

Malmgren. discloses the method for transmitting an OFDM signal to facilitate receiver synchronization (col. 5 line 31 to col. 6 line 2) comprising: developing a frequency domain burst wherein periodically spaced frequency domain symbols of said burst have values including non-zero values and frequency domain symbols between said periodically spaced frequency domain symbols have null energy (col. 8 line 17 to col. 9 line 12), wherein said periodically spaced frequency domain symbols are spaced at least four symbols apart; and transmitting said frequency domain burst (see Figs. 2-3 and col. 5 lines 11-20).

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Regarding claim 15:

Malmgren. discloses wherein at least one of said periodically spaced frequency domain symbols carries data (col. 5 lines 32-41 and col. 6 lines 3-11).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made. This application currently names joint inventors. In

considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103[®] and

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potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a)

8. Claims 9-11 and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malmgren (6,314,082) in view of Barratt et al. (5,909,470).

Malmgren disclose the method and system for synchronizing a receiver to an OFDM signal (col. 5 line 31 to col. 6 line 2) comprising: receiving at least one synchronization OFDM burst wherein periodically spaced frequency domain symbols of said at least one synchronization OFDM burst have predetermined values and frequency domain symbols between said periodically spaced frequency domain symbols have null energy (col. 8 line 17 to col. 9 line 12).

Malmgren did not teach the evaluating a cost function that varies depending on burst timing alignment, said cost function measuring time domain periodicity of said synchronization OFDM burst; and setting said burst timing alignment to optimize said cost function as in claims 9-11 and 22-25.

Barratt et al. teach that it is known to provide a method for generating a reference signal transmitted from a remote station to a communications station used for time alignment at the receiver whereby the cost function is minimized using the

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received signals and the reference signal as set forth at col. 6 line 63 to col. 7 line 22 and col. 11 lines 24-45 in the field of digital and multiplex communications for the purpose of providing a more cost effective system operation which clearly anticipate the step of evaluating a cost function that varies depending on burst timing alignment and setting the timing alignment to optimize the cost function.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the step of evaluating a cost function that varies depending on burst timing alignment and setting the timing alignment to optimize the cost function as taught by Barratt et al. to the system of Malmgren because Barratt et al. teach the desirable advantage of providing a more cost effective system operation by varying timing alignment in Malmgren.

Allowable Subject Matter

9. Claims 4-8, 17-18, and 20-21 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims.

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Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Seki et al. disclose an OFDM synchronization demodulation circuit.

11. **Any response to this nonfinal action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314, (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (2600 Receptionist at (703) 305-4750).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shick Hom whose telephone number is (703) 305-4742. The examiner's regular

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work schedule is Monday to Friday from 8:00 am to 5:30 pm EST and out of office on alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao, can be reached at (703) 308-5463.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Seema S. Rao
SEEMA S. RAO 8/25/03
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

SH

August 22, 2003